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REGIONAL BRAIN OXYGEN SATURATION AS A NOVEL INDEX OF NEUROLOGICAL OUTCOMES IN PATIENTS WITH OUT-OF-HOSPITAL CARDIOGENIC CARDIAC ARREST

ACC Poster Contributions
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Background: Although ammonia (NH3) is a useful marker of brain resuscitation in patients with out-of-hospital cardiac arrest (OHCA), it takes a certain amount of time to measure the NH3 level. If an objective index enabled the earlier prediction of a patient's outcome, it would help to determine whether more aggressive treatment should be performed on the patient. So we focused on noninvasive regional brain oxygen saturation (rSO2), because rSO2 can be measured sooner than NH3 by INVOS5100C (Somanetics, USA) and monitoring rSO2 levels during cardiovascular surgery has been shown to relate to the neurological outcome. We investigated whether rSO2 can be used as a useful index for estimating the neurological prognosis in patients with OHCA. To our knowledge, this is the first report on rSO2 levels in patients with OHCA.

Methods: Of the 46 patients with OHCA during the period from March to August 2009, 25 of them were cardiogenic arrest. In these 25 patients, we statistically analyzed the correlation between the NH3 levels and the rSO2 levels measured immediately after arrival.

Results: The rSO2 levels in 13 patients with the favorable neurological outcome were significantly higher than those in 12 patients with the unfavorable neurological outcome (a median, 60% vs 16%, p<0.001). There was a close negative correlation between the NH3 levels and the rSO2 levels.

Conclusion: rSO2 is an easily obtained novel index for estimating the neurological prognosis in patients with out-of-hospital cardiogenic cardiac arrest.

Figure: Correlation between the NH3 levels and the rSO2 levels